# Rapid Assessment of Grasslands (RAG)

# Monitoring Protocol

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# Introduction

## Need

This project is needed to provide a timely and transparent process for assessing management of grassland habitats on U.S. Fish and Wildlife Service Wetland Management Districts (WMD) and National Wildlife Refuges (NWR). WMDs and NWRs often times manage many acres of grassland habitats across a broad landscape. The number of tracts and acres of grassland with limited staff time and funding make it difficult to assess management of these habitats through data collection during the timing necessary, data entry, data analysis, and provide a report to the manager in a timely fashion to make a management decision for the following year. Through a rapid assessment protocol the Rapid Assessment of Grasslands (RAG) survey strives to provide as accurate and precise information as possible to allow managers to demonstrate accountability and implement management strategies through sound science.

## What to Monitor

Resource management decisions should be based on the best available information. We are developing a monitoring program that will collect data to inform and improve management decisions at the station level. This information is used to determine the relative importance of a management site to focal species that utilize the grassland habitat during breeding or migration, alter management to meet changing needs, and guide the development of management plan objectives.

At the local scale, managers will determine habitat management capabilities and quantity/quality status of individual grassland management sites. This information will be used to identify appropriate annual grassland management objectives and strategies for a grassland or grassland/wetland complex to meet objectives. Management actions will be performed to optimize targeted focal species use. Management areas will track available habitat acreage, habitat quality and focal species response to individual grassland management actions within an adaptive management framework. Measures of habitat quality, quantity and timing, and amount of focal species use will be used in a cross-scale adaptive management framework model, to improve local grassland habitat management decisions.

## Objectives

1) Utilize SHC and AM techniques for managing grassland habitats at WMDs and NWRs.

2) Implement management strategies for providing high quality grassland habitat on station lands in the following year through science based decisions.

3) Prioritize management effort for providing high quality grassland habitats on station lands in the following year through science based decisions.

4) Provide accountability measures for previous year's management decisions on station lands.

In an effort to accomplish these objectives some assumptions must be made.

1 – Data can be assessed through minimal time in the field.

2 – The data provided through the rapid assessment protocol is sufficient to make management decisions in the upcoming year.

3 – The risk of being wrong is low.

Habitat characteristics evaluated incorrectly and implementing the wrong decision will not cause irreversible change in plant or animal communities/populations.

## Survey Area

### Org

Org (short for organization) will be designated by FWS org code. A 5 digit org code is given to each NWR or WMD. Each org should have a corresponding name for that given NWR or WMD.

### Units

RAG will establish a design that will allow relation of bird count data to management and habitat characteristics with a focus on the habitat data. To achieve this, bird and vegetation surveys should be conducted in relatively small and homogenous grassland units with the same management action application. On managed lands, grasslands are often divided into management units (WPA, NWR Refuge Division, etc.). Wherever possible, existing management units will be used as count units. These units will be delineated using a GIS program. Bird survey methods will be established through another survey protocol that is compatible to compare wildlife response to the vegetation assessments in this protocol.

A unit ID will be developed to establish a unique identifier for each management unit. This ID will be established by the local coordinator for the survey and approved by the survey coordinator to ensure unique IDs across the landscape. IDs will be unique number identifiers for each unit.

### Upland Management Units

Upland management units will be derived on a basis of need. Each upland management unit will contain a letter or combination of letters, generally starting with A and working to Z and then AA to AZ and so on, to identify it as unique within that Unit. Upland management units should be delineated based on fences or other barriers that create boundaries for application of management techniques.

### Survey Schedule

Surveys will occur from late-July until late September. This will allow new growth vegetation to establish for the year prior to vegetation surveys while providing adequate timing to conduct surveys, enter data, analyze data, and provide a report to management to implement suggested techniques for the following year. This process will be completed by December so that managers will have sufficient time to plan implementation for the following spring and fall.

### Unit Priority

Unit prioritization will be based on prioritization developed in Lake Andes NWR Complex Comprehensive Conservation Plan (CCP) and further refined in Lake Andes NWR Complex Habitat Management Plan (HMP). Priority will also take into consideration years since last disturbance and unit objective. Priority will be given to those units that have not been disturbed in more than five years. Priority will also be given to those units that the objective is to manage as a native prairie or native grass stand over those that are managed as "good" stands of introduced grasses. Introduced grasses will be managed as "good" stands until management capability (staff time, funding, and feasibility) allow them to be reconstructed into native grass stands.

## Data Collection

*Vegetation Survey Protocol*

### Equipment

- Vehicle
- ATV/UTV
- Map of the site, unit, and upland management unit boundaries
- Vegetation Survey Form
- Vegetation Survey Protocol
- Clipboard and Pencil

### Observers

Provide full first and last name of all observers conducting the survey for the given unit.

### Date

Use the format MM/DD/YYYY.

### Species List

Use ocular observation to identify plant species within uplands for each upland management unit (upland management unit will be considered as uplands only and wetlands excluded within each upland management unit from here on out within this protocol). This can be accomplished by walking or driving an ATV/UTV through the upland management unit. Observer should spend enough time and cover enough ground within the upland management unit to sufficiently fill out the rest of the data required. Not all species actually present within the upland management unit will be observed but the observer should gain a pretty good feeling for the state of the habitat within the upland management unit. Species should be recorded as observed on the backside of the data sheet by common name or scientific name. Identifying individual species is not the priority with this survey but being able to identify the number of species and coverages that fit into the other categories within this protocol is priority so therefore keeping track of species observed is necessary. Each species will fit into a different category or class (i.e. native cool season grass [NCS], native warm season grass [NWS], native forb [NF], non-native grass [NNG], non-native forb [NNF], woody trees/shrubs [WP], or wetland vegetation [WET]. WP should only be used for those species that are not a native part of grassland prairies (lead plant, rose, snowberry, etc. should be considered NF). Remember do not get hung up on identifying every plant within the upland management unit; if you can put it into one of these categories and ensure it does not get double counted then record it and move on. This is a rapid assessment; therefore, we want to gather sufficient information but we need to balance time and effort with information gathered.

### Litter Layer Depth

Litter layer depth is defined as the best estimate of depth from remaining dead vegetation from previous years. This information can be best collected through entering the unit at multiple locations to get an average classification of High, Medium, or Low. High would be easily burnable. Medium would carry a fire but intensity would be lower. Low would not carry a fire very well.

## NPAM Habitat Class

Use ocular estimation to assess what percentage of the unit is in each NPAM habitat class. The estimates are based on canopy cover. These categories are designed for monitoring plant community composition of native sod, planted natives, and DNC (revised from Grant et al. 2004, Hegstad 1973). Document robust patches of native forbs >50% with category 25 (i.e., lead plant, goldenrod, etc.). Alternatively, category 75 (other weeds) can be used to document weed patches that typically dominate disturbed sites. Litter is not a category in itself, therefore, assign litter to category it applies to (e.g., Kentucky blugrass litter = 31). In the event of an apparent equal mix of KY blugrass and smooth brome – consider as code 41. Prairie rose and leadplant are considered native forbs with respect to these categories. See South Dakota Plant Associations (updated July 27, 2009) list for categories. Note that percentage cover must sum to 100!

## Vegetation Height Class

Use ocular estimation to assess what percentage of the unit is in each of seven height categories. Note the height being measured is the canopy and the total must sum to 100. The seven categories are:

- < 2.5 cm (<1") - this includes bare ground (e.g. mudflat) and open water
- 2.5 – 15 cm (1"-6") - short vegetation, e.g. grazed grassland, sprouting crops, dwarf spikerush, etc
- 16 – 30 cm (6"-1') - medium herbs/grasses
- 31 – 60 cm (1' – 2') - tall herbs grasses and low shrubs (smooth brome grass, Kentucky bluegrass, etc.)
- 60 cm – 3 m (2' - 10') - shrubs and low trees plus tall herbaceous vegetation and grasses (e.g. big bluestem, indian grass, switchgrass, etc.)
- 3 – 6 m (10' - 20') - medium height trees
- 6 m (>20') - tall trees

## Habitat Class (# of species)

This section is where the species list comes in handy. Record the number of species observed within each of the given categories (native cool season grasses, native warm season grasses, native forbs, non-native grasses, and non-native forbs).

## Habitat Class (% Unit)

Use ocular estimation to assign coverage of each habitat class within each upland management unit. Within this section we do not require the total to add to 100%. This allows for multiple stratifications of vegetation coverage at different heights. If cool season native grasses are present throughout most of the unit but underneath the canopy of warm season grasses such as the following example; western wheatgrass, slender wheatgrass, and green needlegrass are spread throughout 60 percent of the upland management unit and big bluestem, Indian grass, and switch grass are spread throughout 100 percent of the upland management unit then we would say that native cool season grasses make up 60 percent and native warm season grasses make up 100 percent for a total of 160 percent. This provides a different way of looking at the unit than the NPAM Habitat Class.

## Invasive/Nuisance Vegetation Species

Species within this section have been identified through the HMP process to be species that warrant concern for causing issues within grassland ecosystems, are controlled for political reasons, or create monocultures.

Species listed in this section are the only species that we are concerned with at this time. Use ocular estimation to assign coverage of each species present within each upland management unit. Within this section we do not require the total to add to 100%. This allows for multiple stratifications of vegetation coverage at different heights. If Kentucky bluegrass is present throughout most of the unit but underneath the canopy of smooth brome grass such as the following example; Kentucky bluegrass is spread throughout 60 percent of the upland management unit and smooth brome grass is spread throughout 100 percent of the upland management unit then we would say that Kentucky bluegrass make up 60 percent and smooth brome grass make up 100 percent for a total of 160 percent.

### Total Vegetative Species Observed

Record the number of vegetative species observed and recorded on the species list.

## Data Entry

Data entry will occur immediately after field season for data collection. Data will be entered into a Microsoft Access® database and maintained at the station. Data entry should be completed by mid-October.

## Data Analysis

Data analysis will be conducted by station biologist. Data analysis will use relatively simplistic statistical methods.

Analysis for the NPAM habitat Class data will assess the proportion of the unit in native prairie, smooth brome, Kentucky bluegrass. It will also determine which vegetation state the unit is in based on comparing the coverages to the habitat states defined in the NPAM protocol.

A quality score (derived by adding together the sum for all species of the plant presence index, which is the percent cover for the plant species in the unit multiplied by the value {0-3 with 3 being the best plant for the objective} given to the plant species. The list of plant species values is established by the station staff through an SDM process during the development of the HMP.

Data should be analyzed by the beginning of November.

## Data Back-up

Data should be maintained on the share drive with a back-up on the drive and maintained on an external hard drive. This should be done after each step (i.e. data entry, data analysis, and data reporting).

## Reporting

A report will be completed by station biologist and provide recommended management actions by unit to station manager by December 31st. This will consist of an in depth summary of dominant species and their percent cover, litter layer depth, whether the vegetation is outside and desirable invasive/nuisance species threshold, total number of species within unit, an overall unit quality score, and whether the unit is outside any

threshold; which will lead to an assessed unit priority and management techniques recommendation for the following year.